Cancer and Vitamin C Therapy for Patients

by Reagan Houston, MS, PE

Introduction

Mainline cancer therapies are improving only slowly. Vitamin C for cancer therapy is safe, effective, and with essentially no long term side effects. In 1969, the National Cancer Institute[1] (NCI) determined how vitamin C safely kills cancer. The NCI lab test was confirmed by clinical tests in Scotland and Canada on hundreds of patients. This review summarizes problems with present therapies, safety, and government regulations, and discusses what cancer patients can safely do to live longer. They can improve their cancer therapy by a low glucose diet and adding vitamin C and other supplements to regular therapies.

What Is Cancer?

There are over 100 types of cancer and many subtypes. When normal cells mutate toward uncontrolled growth, they ultimately become cancer. But cancer cells continue to mutate and microevolve toward even faster growth. Steve Hickey[2] and Hilary Roberts beautifully explain this microevolution. Within a given cancer, some cells are normal, some are slightly mutated, and some may be highly mutated. Since all cancers mutate toward the same goal – rapid growth – they become functionally similar: advanced cancers consume glucose voraciously. Fortunately, glucose intake makes cancers controllable by vitamin C.

By evaluating a clinical test of advanced cancers of many types as a single disease or function, the trial by Abram Hoffer[3,4] becomes more relevant and understandable. He followed 134 patients for a period of 15 years. Based on microevolution/mutation, his clinical trial changes from a group of many anecdotes toward a useful trial of a single therapy for many types of cancer having a single function. The *in vitro* NCI test and Hoffer's clinical trial show that vitamin C at sufficiently high dosage will kill aggressive cancers of many types.

Vitamin C Therapies

Ewan Cameron and Linus Pauling[5] found that vitamin C helped terminal, hospitalized cancer patients live about four times as long as matched patients not given vitamin C. Cameron administered vitamin C in the form of sodium ascorbate both orally and intravenously to treat over 1000 cancer patients. His recommended regimen[6] was an initial ten-day period of IV vitamin C at 10,000 mg/day, followed by 10,000 mg/day of vitamin C orally and continuously.

Hoffer ran a test with 134 patients having 30 types of advanced cancer. Hoffer prescribed a diet low in meat, *very low in sugar*, but high in fruits, vegetables, and water (Table 1).[4] The vitamin C should be taken in three or four divided doses preferably with meals.

Additional supplements[2,7,8] that improve vitamin C therapy could include coenzyme Q10, alpha lipoic acid, and vitamins D3, K3, and E succinate.

Table 1. Hoffer's Daily Regimen for Cancer

Vitamin C	12,000 mg
range	3,000 to 40,000
Beta carotene	30,000 IU
Vitamin B complex	B-50 to B-100
Vitamin E	300 IU
Selenium	600 mcg
Zinc	60 mg

Hoffer has treated over thirty types of cancers with impressive results (Table 2). Most of his patients had advanced cancers that could not be helped by more surgery, radiation, or chemotherapy. In Hoffer's test group, those who refused vitamins lived a median of only 2.6 months. Those who accepted vitamins lived 45 months after seeing Hoffer. All 32 of the breast cancer patients had surgery, radiation, and/or chemotherapy. The median life of these very sick patients who chose to take vitamins was 70 months, while those without vitamins lived only 3.7 months.

Table 2. Median Survival of Hoffer's Patients, Months[9]

Type of Cancer	With Vitamins	Without Vitamins
Breast	70	3.7
Uterus	99	4.0
Ovary	16	3.6
Lung	17	2.0
Pancreas	40	2.4
All 30 Types	45	2.6

To all of his cancer patients, Hoffer offered the vitamin regimen, diet, and hope based on the results with earlier patients. Those who accepted vitamins thus had three advantages over those who rejected vitamins. Self-selection is typical of real life but not ideal for statistical evaluation. However self-selection would not explain the large difference in survival times. Hoffer obtained good results with oral-only vitamin C, apparently because he included a low-glucose diet, vitamin C, and supplements that helped vitamin C kill the cancer. The therapies of Cameron and Hoffer have many advantages (Table 3).

Hoffer's vitamin therapy "has given [his patients] more energy, improved depression and anxiety, created a sense of well-being, eased pain, and often eliminated pain entirely."[4]

Table 3. Advantages of Vitamin C Therapies[4,5]

- Systemic therapy rather than local
- No long-term side effects
- Often relieves pain within two weeks
- Fifteen-year clinical test with 134 patients by Hoffer
- Over 1,300 patients treated by Hoffer and 1,000 by Cameron
- Helpful with most or all types of cancer
- Apparently are not limited by cancer mutation
- Economical
- Materials available over the counter (use with professional supervision for safety)
- Safe for use now but development should improve results

Other Vitamin C Regimens

Irwin Stone[10] reported on a patient, JK, whose prostate cancer after surgery and radiation had spread to his pelvis, lung, and rib cage. At this diagnosis, he was declared terminal with one year to live. J chose a no-beef, no-candy diet and gradually increased his oral vitamin C to 80,000 mg/day. He was able to continue working every day. At one point while under high stress, he increased his vitamin C to 150,000 mg/day (one-third of a pound) without having diarrhea! He apparently lived eight years after being declared terminal.

Creagan[11] and Moertel[12] claimed to repeat Cameron's test, but did not follow Cameron's instructions or regimen. They did not find vitamin C to be helpful. Creagan's randomized test used patients whose immune system had been decimated by prior chemotherapy. Moertel administered vitamin C for an average of only 2.5 months, although the test lasted over 14 months. Also, they administered vitamin C pills orally instead of by IV as Cameron had done. Diet and frequency of dosage were important but uncontrolled variables. The modifications developed by Creagan and Moertel showed that some regimens do not work. Their claims that vitamin C is "not effective against advanced malignant disease" is an unwarranted generalization. Their tests do not diminish the success of Cameron's work.

Basic Science

The National Cancer Institute[1] and the National Institute of Health[13] reported on a mechanism by which vitamin C kills cancer. The ascorbate (reduced) form of vitamin C reacts with free radicals to form dehydroascorbate (DHA). Free iron or copper may promote this in a Fenton reaction. The DHA enters the cancer cells through the channels that bring in glucose. DHA competes with glucose to enter cancer cells, so a low-glucose diet is helpful and may be critical. Advanced cancers have excess glucose channels to bring in the extra glucose that cancers require. Inside the cancer cells, the DHA is converted to ascorbate and hydrogen peroxide.[1] The hydrogen peroxide kills cancer by a free-radical, oxidation process.[1]

Hydrogen peroxide can promote cell growth, but an excess of hydrogen peroxide can kill cancer cells. The amount of catalase in cancer cells is often severely decreased. Catalase is an enzyme that neutralizes hydrogen peroxide and limits the oxidizing radicals in normal cells. Normal cells are not harmed by large doses of vitamin C, because they limit the intake of ascorbate and contain sufficient catalase to destroy the hydrogen peroxide normally produced.

Vitamin C has a short half-life in blood plasma, about 30 minutes. Oral ingestion gives a serum peak in about two hours, and the level then drops to half in about another hour. Thus, vitamin C should ideally be taken in frequent, divided doses. Note that Hoffer successfully used 12,000 mg/day in three or four divided doses, mostly with meals. The divided intake would increase the minimum ascorbate level far above a single dose. Vitamin C is an antioxidant in most of the body but

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a cell-killing oxidant in cancer cells. *In vitro* and in some animal tests, vitamin C at low or intermediate levels can promote the growth of cancer cells more than normal cells. Hoffer recommended at least 3,000 mg/day of ascorbate for humans and avoided this problem. Glucose limiting may be critical.[14] Glucose promotes cancer growth, and DHA, if in sufficient quantity, can oxidize and kill cancer. It is suggested that the ratio of DHA to glucose may help determine the proper dose of vitamin C and may even predict the recovery rate for cancer patients. Perhaps higher dietary glucose can be balanced by a higher dose of ascorbate. Further study is recommended. Meanwhile, the regimens described by Hoffer and Stone are effective: a low glucose diet and oral vitamin C at 12,000 mg/day up to bowel tolerance.

Vitamin C Is Safe

Many people have taken 30,000 mg/day for years. Some doctors[15] have given 200,000 mg/day by IV. Some claim that vitamin C "might" cause kidney stones, although doctors who give large doses of vitamin C rarely see stones in their patients. Ascorbic acid can make the urine acidic to dissolve some stones.

Excessive vitamin C can cause diarrhea. People with cancer can frequently take and need oral vitamin C at 30,000 mg/day, while well people have a typical limit of 3,000 to 10,000 mg/day. If people on therapeutic doses of vitamin C develop diarrhea, the dose should be reduced. Actually, diarrhea is a useful indicator, because it provides a simple measure of the proper dosage for each individual. Hoffer's patients, who took from 3,000 to 40,000 mg/day, illustrate the wide range of dosages suitable for individual cancer therapy.

Humans cannot make the vitamin C they need, although most animals can. A 160-pound goat[5] can make 13,000 mg/day – a reasonable dose for people with cancer. Table 4 includes some of the precautions, side effects, and alternatives listed by Casciari[16] and others. However, Cameron and Hoffer did not report that they followed the precautions in step 5 regarding the deficiency of glucose-6-phosphate dehydrogenase enzyme. Cameron's and Hoffer's experiences show that vitamin therapy must be continued for years or continuously, although the dosages can usually be reduced after several months. Thus cancer can become a treatable chronic disease instead of an acute terminal illness.

Table 4. Precautions with High-Dose Vitamin C

1. Build up the dose slowly by about 1,000 or 2,000 mg/day to minimize diarrhea and other problems. Be careful if there is a large load of advanced cancer.
2. If necessary, decrease the dose slowly to allow the body to adjust.
3. Vitamin C – especially ascorbic acid – may cause gas, upset stomach, or skin itch. If this problem occurs, consider using sodium ascorbate or calcium ascorbate.
4. Excess sodium intake from sodium ascorbate is possible. Consider using potassium ascorbate or ascorbic acid.
5. Some people have a rare deficiency of glucose-6-phosphate dehydrogenase enzyme, and large doses may cause acute anemia.
6. For their own safety, people should work with a doctor knowledgeable about vitamins.
7. Patients should be checked for renal insufficiency, chronic hemodialysis, unusual forms of iron overload, calcium buildup, and oxalate stone formation.
8. Some people may not be able to use high doses of vitamin C.

The Status of Cancer Therapies

Radiation and chemotherapy are limited, because they kill both healthy and cancerous tissue. Therapies based on the characteristics of the genes in the original, normal cells also have a limited time (months?) in which to kill the cancer. As time passes, the cancer cells microevolve to be resistant to gene-based therapies. They mutate from slightly mutated to aggressive cells that retain fewer of the characteristics on which the gene therapy originally focused. Prostate cancer, for example, mutates from near normal to highly abnormal in appearance in the five stages that contribute to the Gleason score. In some cases, advanced prostate cancers generate almost none of the prostate-specific antigen that describes the cancer.

Vitamin C therapy does not have a therapeutic time interval, because cancers evolve toward increased glucose intake and thus toward greater sensitivity to vitamin C. Patients have safely taken massive doses for periods of many years. Vitamin C appears to control early-stage cancer, but this needs verification.

Therapy Choices

Surgery, radiation, and chemotherapy can generally be used with vitamin C therapy (Lamson,[17] Stoute[18]). Mainline therapies can have permanent and undesirable side effects, but vitamin C therapy can sometimes provide equivalent therapy without long-term side effects. By using both conventional and vitamin C therapies[4,5] together, the patient can often receive the best possible outcome.

For cancer *prevention*, Hoffer recommends his basic regimen with dosages cut in half or one-fourth. For early or *slow-growing* cancers, Hoffer's regimen may suffice if carefully monitored.

For more advanced or *aggressive* cancers, surgery and radiation may be required along with Hoffer's regimen augmented with enough vitamin C to almost cause diarrhea, plus other vitamins and supplements as mentioned above. In some cases, and with medical supervision, patients may wish to temporarily delay surgery, radiation, and especially chemotherapy while using Hoffer's regimen to see if vitamins control their cancer.

Procedures for Administering Vitamin C

Cameron's initial 50 cancer patients[19] mostly received IV ascorbic acid at 10,000 mg/day, while 17 received only oral vitamin C. Many of his terminal patients left the hospital, but their cancer sometimes returned if they stopped taking oral vitamin C. Hoffer prescribed oral vitamin C, other vitamins and supplements, and a low-meat, low-sugar diet. *In vitro* tests by Riordan[20] showed that the levels of vitamin C required to kill various cancers were well above the serum level easily obtainable by oral vitamin C. He also showed that vitamin K3 and alpha lipoic acid greatly improved vitamin C therapy. Riordan and others decided that IV vitamin C was warranted and have treated patients with a regimen such as sodium ascorbate at 15,000 to 100,000 mg by four-hour IV given one to three times per week plus oral vitamin C and other supplements. Results have been good based on clinical case reports. Hoffer was successful with oral-only vitamin C, because he enhanced it with other supplements and diet. Hickey[8] recommends oral vitamin C together with supplements that generate hydrogen peroxide plus a low-glucose diet. He feels that pulsed IV vitamin C may kill weak cancer cells while letting stronger cells microevolve to be more aggressive.

Acceptance

Vitamin C and supplements have been effective at controlling cancer, but vitamin C is not officially approved for cancer therapy. US government regulations[1] require (or required) that materials considered for chemotherapy testing be lethal for small animals at doses of 500 mg/kg. This restriction makes testing a million dollar expense. Money for properly testing non-patentable vitamin C has been available only rarely. M. Stephenson[21] has started an FDA-approved, phase 1 trial of IV ascorbate at 50,000 mg four times per week for prostate cancer. Some question the need for expensive tests on safe, well-known vitamins.

In spite of the obvious advantages of Cameron's and Hoffer's cancer regimens, *correct* randomized tests have not been run. Neither Creagan nor Moertel followed Cameron's regimen. The medical community requires that new cancer therapies be proven by large, randomized, and preferably double-blind tests. However, surgery, radiation, and chemotherapy were each *accepted* in desperation without randomized tests against each other. More recently, new therapies are subject to testing. Neither radiation nor chemotherapy can be given randomized and double-blind tests versus each other because of the obvious and debilitating side effects. These therapies were accepted based on historic experience.

To require vitamins to pass tests that radiation and chemotherapies have not and cannot pass demonstrates questionable logic. Hickey[8] states: "The argument that the benefits have not been 'proven' is unscientific; such a statement could always be applied, no matter how strong the evidence. Indeed, the conventional idea that large-scale clinical trials are required is scientifically unsupportable." The cost of repeating Hoffer's regimen for a few years is minimal compared to the value of lives probably saved.

Drug and vitamin companies, in fairness to their stockholders, cannot run expensive randomized or double-blind tests on unpatentable vitamins. Perhaps an altruistic philanthropy could fund suitable tests to demonstrate the ability of oral vitamin C to increase patients' life and comfort and promote acceptance of vitamin C.

Doctor-Patient Relations

High-dose vitamin C cancer therapy is not approved in the US. The Food and Drug Administration and state medical boards enforce this regulation to prevent unsafe therapies from replacing or delaying accepted therapies. In other words, oncologists are not allowed to prescribe high-dose vitamin C as a cancer therapy. If a cancer patient asks his oncologist to prescribe vitamin C, the doctor will probably ➤

say no. The oncologist might also say that high-dose vitamin C is unsafe – that is his training. Actually, high-dose vitamin C is *safe* – far safer than standard therapies. Fortunately, a cancer patient who wants to use Hoffer's therapy has options. The patient can ask, "Have any of your cancer patients used high-dose vitamin C and did they do well?" Some patients have said to their doctor: "I plan to use vitamin C." If the doctor shows understanding without necessarily showing approval, the patient has a suitable doctor. If the doctor repeats that vitamin C is unsafe, the patient can ask for scientific evidence.

The patient, for safety, should give the doctor information on all of his supplements and dosages even if the doctor dislikes vitamins. Many patients also work with nutritionists or similar professionals to better understand vitamin therapy, its possible problems and advantages. Many doctors use vitamin C to "strengthen" cancer patients, even though these doctors are not certified to "treat" cancer. The cautious choice of words may be necessary for legal reasons. Because the vitamins and supplements are easily available over the counter, a patient could treat his own cancer but this is risky. Some patients use vitamin C therapy quietly because their doctor does not approve, but this too can be risky.

Conclusion

Advanced cancers are functionally quite similar – they take in mostly glucose. Hoffer's regimen with high-dose vitamin C is well demonstrated and safe enough to use now with medical supervision. Hoffer's therapy could be especially attractive for patients with rare types of cancer who have no available therapy. Vitamin C may change cancer from being an acute terminal disease into chronic one. Further development of Hoffer's regimen is recommended, and it holds great promise of becoming the preferred cancer therapy, especially with systemic cancers.

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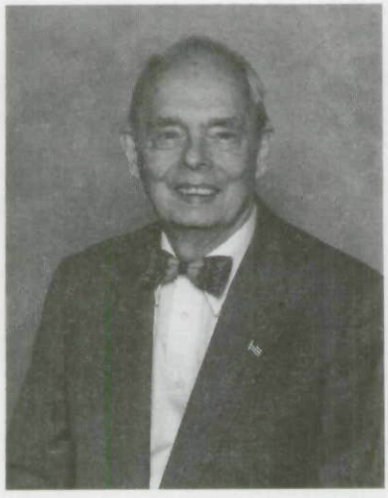

Reagan Houston, a research chemical engineer, was leader of a prostate cancer support group. When his prostate cancer was diagnosed ten years ago, his PSA, a measure of the cancer, was eight and doubling every six months – a sign of aggressive cancer. A PSA of four or less is normal. He chose intermittent triple hormone therapy (Lupron, Eulexin, and Proscar) and Hoffer-type vitamins, both highly experimental in 1997. After one year, he stopped the Lupron and Eulexin but continued the Proscar and vitamins. His PSA has averaged 0.6 for the last eight years and is now 0.6. He has never had surgery, chemotherapy, or radiation of any kind.

Notes

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